Paraonella platybranchia

Phylum: Annelida
Class: Polychaeta
Order: Orbiniida
Family: Paraonidae

Description

Size: Individuals approximately 15 mm in length (Hartman 1969) to 0.45 mm in width (Hobson 1976) with 65–120 segments. The specimen (from Coos Bay) dissected for this description 8 mm long and 0.3 mm wide.
Color: Pale translucent with green tinge post-branchially (Hartman 1961).
General Morphology: Long, slender and threadlike (Hartman 1961).
Body: Segments wider than long and body regions not distinctly divided (Paraonidae).

Anterior: Prostomium long (sp. *platybranchia*, Hartman 1961), triangular and acute with anterior half set off by marked constriction (Fig. 2). A pair of nuchal elevations is present on sides of peristomium near mouth (genus *Paraonella*, Fauchald 1977). Mouth is a triangular slit between prostomium and first segment (Fig. 2) with posterior long notch that forms lower lip (Hartman 1961).
Trunk:
Posterior: Pygidium is a flat, auricular ventral lobe about twice as wide as the last posterior segment (Fig. 1). Three cirriform processes (two lateral and one shorter, midventral) attached dorsally to lobe (Hobson 1976) are easily lost. Anal pore dorsal.

Parapodia: Present on all segments, bearing short setigerous papillae. Notopodia short to long notosetal lobes, which are longest in branchial segments (Hartman 1969) and begin on setiger four (Fig. 3).
Setae (chaetae): All segments are setigerous (Fig. 1). Setae are all long, capillary and hair-like (*Paraonella*, Hobson and Banse 1981). No acicular spines (as in *Nereis vexillosa*). Limbate notosetae (2–4) on first 3–5 notopodia and first 13–14 neuropodia (Hobson 1976). In branchial segments, notosetae exist in less dense fascicles than neurosetae.
Eyes/Eyespots: One small pair at base of posterior half of prostomium (sp. *platybranchia*, Hartman 1961). Some specimens (including the individual used for this description) with accessory eyespots (Posey 1985) (Fig. 2).
Anterior Appendages: None.
Branchiae: Branchiae broad, flat, distally pointed, lying flat across dorsum, just meeting (Fig. 2) consisting of 16-29 branchial pairs (18 in the present specimen) beginning on setiger four. *Platybranchia* = plate-like branchiae.
Burrow/Tube:
Pharynx: Bears short, eversible and sac-like proboscis (Fauchald and Jumars 1979).
Genitalia:
Nephridia:

Possible Misidentifications

The order Orbiniida (Fauchald 1977) includes the families Orbiniidae and Paraonidae (and the “enigmatic” Questidae (Bleidorn 2005)), the latter comprising smaller species (less than 20 mm in length) (Blake and Ruff 2007). The order is characterized by a lack of prostomial appendages, maximum of two asetigerous anterior segments, a lack of additional cephalized segments or palps, simple setae and an eversible pharynx that is either an axial sac or biramous (Fauchald 1977). Members of the family Orbiniidae have a prostomium and peristomium without appendages, 1–2 asetigerous anterior segments and lateral thoracic parapodia, becoming dorsal abdominally. Setae can be capillary or simple hooks and some species have brush-topped bifid or furcate setae. Orbiniidae and Paraonidae can be distinguished by peristomial rings: orbiniids have one and paraonids have two (Blake 2000a, b).

There are several similar families (not in the order Orbiniida): Ophelidae are short

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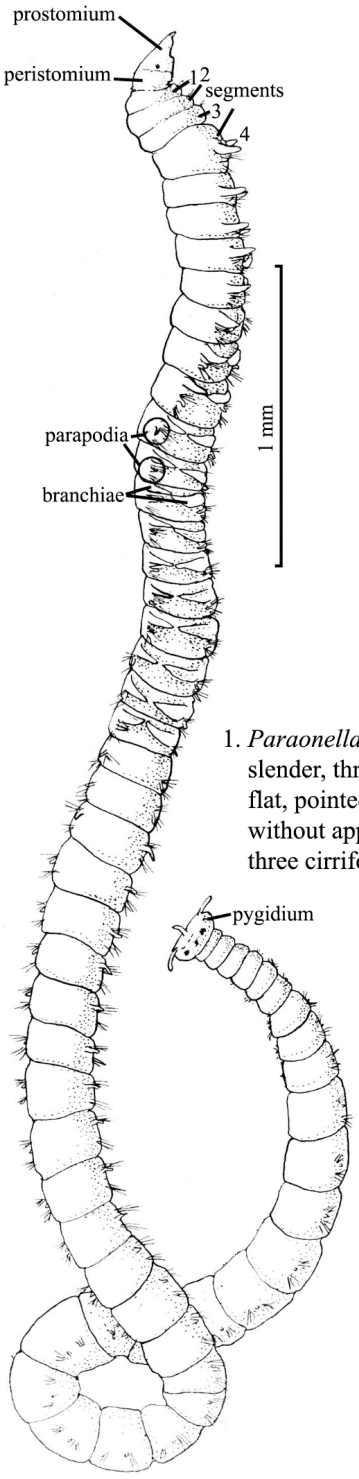
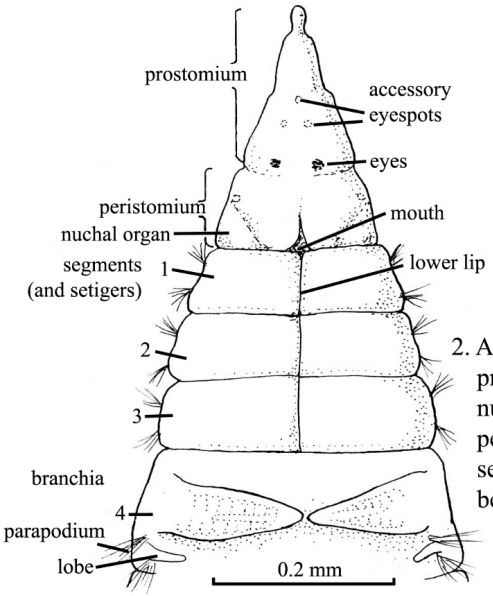
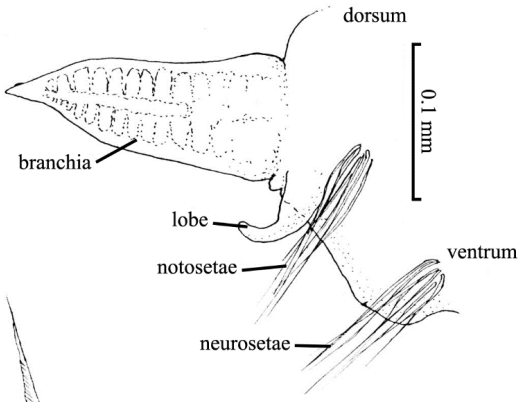
Paraonella platybranchia



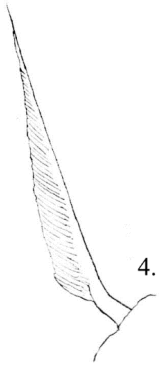
1. *Paraonella platybranchia* (L:15mm) x50: slender, threadlike; 65-75 segments; 16-29 pairs flat, pointed branchiae; acute prostomium without appendages; pygidium a flange with three cirriform processes.



2. Anterior (dorsal view) x150: prostomium long, narrow, 2 eyes; nuchal organs, mouth on peristomium long lower lip; all segments setigerous; branchiae begin on setiger.



3. Parapodium 13 x250.



4. A libate neuroseta x1300: from setiger 2 (from Hobson 1976).

and stout and have a strong ventral groove. Goniadidae and Glyceridae have palps or some kind
of buccal appendage. Ampharetidae have retractible tentacles and Lumbrineridae have hard jaw pieces and hooded hooks among the setae (uncini).

The Paraonidae are small and often overlooked, they have branchiae occurring only on maximum of 15–20 segments, beginning on setigers 4–10 (not on all posterior segments). The body in Paraonidae is not divided into distinct regions by setae and parapodial shapes, but changes gradually along the body (not distinctly as in Orbiniidae, Fauchald 1977). A Paraonidae prostomium can have a medial antenna, which are lacking in Orbiniidae. They have branchiae on some median setigers in most species. The parapodia are lateral. *Paraonella platybranchia* is the only local species in the genus *Paraonella*, other local paraonid genera include (Hobson and Banse 1981; Blake and Ruff 2007):

Aricidea spp, have a medial prostomial antenna, but they have modified setae in all species in the postbranchial neuropida. Gills begin on setiger four in this genus (Hobson and Banse 1981). At least seven species occur in the northeast Pacific.

Cirrophorus spp. have medial and posterior notopodia which are forked or acicular, unlike other genera of this family. They can have a short medial antenna. *C. branchiata* (=*Aricidea* Berkely and Berkeley) and *C. lyra* (Southern) (=*Paraonis* Banse and Hobson 1968) are both found in the northeastern Pacific (Hobson and Banse 1981).

The cosmopolitan *Levinsenia* (= *Tauberia*), like *Paraonella*, has no medial prostomial antenna. It does have hooded hooks in its postbranchial neuropodia, which *Paraonella* lacks.

Ecological Information

Range: Type locality is San Diego. Pacific coast from British Columbia and Washington (Hobson and Banse 1981), Oregon, California (Hartman 1961; Blake and Ruff 2007) to Panama (Hobson 1976). Also in Columbia River mouth (Blake and Ruff 2007).

Local Distribution: In Coos Bay, South Slough and subtidally offshore and in Coos Bay channel.

Habitat: This species prefers clean, fine sand (intertidally in Coos Bay and offshore). Also in muddy, coarse sand (San Diego, Hartman 1969).

Salinity: Found in salinities of 30 in Coos Bay.

Temperature:

Tidal Level: Intertidal (in South Slough) to subtidal.

Associates: In San Diego associates include other polychaetes: *Prionospio malmgreni*, *Dispio uncinata*, *Nephthys caecoides*, *Eteone* sp.

Abundance:

Life-History Information

Reproduction: Two oval or round eggs/segment post-branchially (Hobson 1976) where each egg is 190–230 µm in diameter.

Larva: The development and larva are unknown for local paraonids (Crumrine 2001).

Juvenile:

Longevity:

Growth Rate:

Food: Probably a non-selective, burrowing deposit-feeder or surface feeder (Fauchald and Jumars 1979). Searches ripple troughs or sand for plant debris and dead animals including: pennate diatoms, foraminifera, small crustaceans.

Predators:

Behavior: Posterior end burrows corkscrew fashion into sediment making characteristic spiral patterns (also seen in fossil record) (Fauchald and Jumars 1979). Worm often curled when found (Posey 1985).

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